

**REMARKS**

Claims 1-59 are pending in this application. Applicants appreciate the Examiner's effort to renumber claims 53-59 as claims 54-60. All claims are now presented with the correct status identifier for the Examiner's convenience and confirmation. For purposes of expedition, claim 60 has been canceled without prejudice or disclaimer. Claims 1, 8-12, 20-32, 39-44, 47 and 54-59 have been amended in several particulars for purposes of clarity and brevity in accordance with current Office policy, to further and alternatively define Applicants' disclosed invention and to assist the Examiner to expedite compact prosecution of the instant application. However, base claim 45 has not been amended herein.

The drawings have been objected to under 37 C.F.C. §1.83(a). According to the Examiner, the specific mark length such as T, 3T and 6T must be shown. However, there is no such requirement under 37 C.F.C. §1.83(a). A reference to one example of a test write pattern, i.e., a 2T+5T, as shown, for example, in FIGS. 6A-6B, FIG. 9, and FIG. 10, is sufficient under 37 C.F.C. §1.83(a). As described in paragraphs [0048] and [0049] of Applicants' specification, such a test write pattern may be a combination of marks of two different lengths, such as, a minimum length T, and another mark length where a power is saturated due to the formation of marks. For example, when a RLL (1,7) code is used, the test write pattern is 2T+5T. When a RLL (2,10) code is used, the test write pattern is 3T+6T. Such detailed examples should always be included the specification, and are in fact **not** permitted to be included in the drawings under 37 C.F.C. §1.83(a). In view of these explanations, Applicants trust that the objection be withdrawn.

Claims 43-44 have been objected to because of informalities. In response thereto, claims 43-44 have been amended to correct the typographical errors and to overcome the objection.

Claims 1-60 have been rejected under 35 U.S.C. §112, 1st ¶, as failing to comply with the enablement requirement. The Examiner asserts that FIG. 9 and FIG. 10 contradict the written description of the specification. Specifically, the Examiner asserts that paragraphs 56-57 [FIG. 9] of Applicants' specification appear to contradict paragraph 44. Similarly, the Examiner asserts that there is **no** explanation in paragraphs 61-63 of Applicants' specification to how the minimum, maximum, or minimum values can be known until all the variations are tested. However, the Examiner's assertions are unwarranted, and should be withdrawn for reasons discussed herein.

First, paragraph [0044] of Applicants' specification accurately describes in generally how the erase power  $P_e$ , the write power  $P_w$ , and the bias power  $P_{bw}$  which exhibit recording/reproducing jitter characteristics, as shown in FIGS. 4A-4C, are used for recording in conjunction with a write pattern in order to determine optimum write, erase and bias powers. Specifically,

"a write pattern is record and reproduced ... the erase power  $P_e$ , the write power  $P_w$ , and the bias power  $P_{bw}$  measured when the RF signal has the maximum amplitude value  $I_{5pp}$  are determined as optimum erase, write, and bias powers. **For example**, after the bias power  $P_{bw}$  is fixed to 0.1mW, the write power to 4.7mW, and the erase power  $P_e$  is adjusted within a range of 1.5mW – 2.5mW, the erase power  $P_e$  measured when the RF signal has the maximum amplitude value  $I_{5pp}$  is determined as an optimum erase power  $P_e$ . After the bias power  $P_{bw}$  and the determined optimum erase power  $P_e$  are fixed and the write power  $P_w$  is adjusted, the write power  $P_w$  measured when the RF signal the maximum value  $I_{5pp}$  is determined as an optimum write power  $P_w$ . After the determined erase power  $P_e$  and write power  $P_w$  are fixed and the bias power  $P_{bw}$  is adjusted, the bias power  $P_{bw}$  measured when the RF signal has the maximum amplitude value  $I_{5PP}$  is determined as an optimum bias power  $P_{bw}$

In other words, each of the write, erase and bias powers ( $P_w$ ,  $P_e$  and  $P_{bw}$ ) is measured and adjusted in order to determine optimum erase, write and bias powers.

This is consistent with FIG. 9, which illustrates the process of automatically optimizing writing on an optical recording medium to determine optimum erase, write and bias powers. Paragraphs [0056] and [0057] of Applicants' specifically clearly describe how the flowchart of FIG. 9 functions from setting standard write, erase and bias powers ( $P_w$ ,  $P_e$  and  $P_{bw}$ ) at block 901, recording a test write pattern at block 902, reproducing the same test write pattern from a RF signal at block 903, measuring and adjusting the write, erase and bias powers ( $P_w$ ,  $P_e$  and  $P_{bw}$ ) at block 904 and block 905 individually until optimum erase, write and bias powers are obtained. In view of the foregoing explanations and disclosure, Applicants respectfully submit that there is **no** contradiction between paragraphs 56-57 [FIG. 9] and paragraph 44 of Applicants' specification, as alleged by the Examiner.

Likewise, there is **no** discrepancy or contradiction in FIG. 10, as alleged by the Examiner. FIG. 10 and its corresponding text in paragraphs [0058]-[0063] of Applicants' specification are complete and accurate. However, in FIG. 10, the write pattern is different from that of FIG. 9, in that jitter and asymmetry is taken into consideration at block 1004 and block 1009. For example,

at block 1004, if a asymmetry value is minimized or a RF signal has a maximum amplitude value (15pp), optimum write pattern elements dT1 and dT2 are determined; otherwise, write pattern elements dT1 and dT2 are adjusted at block 1005. Both the minimum asymmetry value and the maximum amplitude value are known by the system, shown in FIG. 1. As a result, the Examiner's questions regarding the enablement of FIG. 10 are not understood, and should be withdrawn.

Claims 56-57 have been rejected under 35 U.S.C. §112, 1st ¶, as failing to comply with the enablement requirement. Specifically, the Examiner asserts that claims 56-57 define the parameters, i.e., dT1 and dT2 that are opposite to the specification. In response thereto, claims 56-57 have been amended to overcome the rejection.

Claims 25-31 have been rejected under 35 U.S.C. §112, 2d ¶, as being indefinite for reasons stated on pages 6-7 of the Office Action. In response thereto, claim 25 has been amended to overcome the rejection.

Claims 1-3, 8, 9, 11-14, 19, 32-34, 42, 47-49, and 60 have been rejected under 35 U.S.C. §102(e) as being anticipated by Okubo et al., U.S. Publication No. 2003/0081518 for reasons stated on pages 7-10 of the Office Action. As previously discussed, base claim 60 has been canceled without prejudice or disclaimer to render its rejection moot. With respect to base claims 1, 12 and 32, Applicants respectfully request the Examiner to reconsider and withdraw this rejection for the following reasons.

Base claims 1, 12 and 32, as amended, define methods of optimizing recording on an optical recording medium to determine optimum powers, including optimum write, erase and bias powers (Pw, Pe, Pbw), as shown, for example, in FIG. 9, and optimum write pattern elements of a write pattern, as shown, for example, in FIG. 10.

For example, base claims 1 and 12 define, *inter alia*:

setting standard powers, including write, erase and bias powers, for test recording and recording a test write pattern in a plurality of tracks of the optical recording medium; and

determining optimum powers, including optimum write, erase and bias powers, using a magnitude of a radio frequency signal reproduced from one of the plurality of tracks effected by writing in adjacent tracks,

wherein write pattern elements of the write pattern are optimized using at least one of a magnitude, an asymmetry value, and a jitter value of the radio frequency signal.

Base claim 32, as amended, defines a method of determining a write pattern by performing test recording on an optical recording medium, comprising:

setting write pattern elements and recording a test write pattern on the optical recording medium;  
reproducing the test write pattern to output a radio frequency signal; and  
determining a write pattern with optimum write pattern elements, based on adjusting the set write pattern elements using a magnitude, an asymmetry value and a jitter value of the radio frequency signal.

As defined in Applicants' base claims 1, 12 and 32, optimum recording conditions, including powers and write patterns, are automatically realized, despite of occurrences of cross-erase caused during writing or cross-talk caused during reproduction.

In contrast to Applicants' base claims 1, 12 and 32, Okubo '518 discloses a different optimum recording power scheme. Okubo '518 discloses a recording power adjusting technique, as shown in FIG. 3A, in which a predetermined pattern is recorded on track of an optical disc, while changing recording power, as indicated by Pw1, Pw2, Pw3. In other words, different recording powers are recorded with every track of an optical disc. This way those different recording powers recorded on an individual track of an optical disc can be used to determine an optimum recording power.

However, there is **no** disclosure from Okubo '518 nor is there any teaching or suggestion of the Applicants' claimed "recording and recording a test write pattern in a plurality of tracks of the optical recording medium" and "determining optimum powers, including optimum write, erase and bias powers, using a magnitude of a radio frequency signal reproduced from one of the plurality of tracks effected by writing in adjacent tracks" as generally defined in Applicants' base claims 1 and 12.

More importantly, there is **no** disclosure anywhere from Okubo '518 of Applicants' claimed "setting write pattern elements and recording a test write pattern on the optical recording medium" ... "determining a write pattern with optimum write pattern elements, based on adjusting the set write pattern elements using a magnitude, an asymmetry value and a jitter value of the radio frequency signal" as defined in Applicants' base claim 32.

The rule under 35 U.S.C. §102 is well settled that anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. In re Paulsen, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994); In re Spada, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). Those elements must either be inherent or disclosed

expressly and must be arranged as in the claim. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 7 USPQ2d 1057 (Fed. Cir. 1988); Verdegall Bros., Inc. v. Union Oil Co., 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). In addition, the prior art reference must be enabling. Akzo N.V. v. U.S. International Trade Commission, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). The corollary of that rule is that absence from the reference of any claimed element negates anticipation. Kloster Speedsteel AB v. Crucible Inc., 793 F.2d 1565, 230 USPQ2d 81 (Fed. Cir. 1986).

The burden of establishing a basis for denying patentability of a claimed invention rests upon the Examiner. The limitations required by the claims cannot be ignored. See In re Wilson, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970). All claim limitations, including those which are functional, must be considered. See In re Oelrich, 666 F.2d 578, 212 USPQ 323 (CCPA 1981). Hence, all words in a claim must be considered in deciding the patentability of that claim against the prior art. Each word in a claim must be given its proper meaning, as construed by a person skilled in the art. Where required to determine the scope of a recited term, the disclosure may be used. See In re Barr, 444 F.2d 588, 170 USPQ 330 (CCPA 1971).

In the present situation, Okubo '518 fails to disclose and suggest key features of Applicants' base claims 1, 12 and 32. Therefore, Applicants respectfully request that the rejection of claims 1-3, 8, 9, 11-14, 19, 32-34, 42, and 47-49 be withdrawn.

Dependent claims 4-7, 15-18, 35-38, and 50-53 have been rejected under 35 U.S.C. §103 as being unpatentable over Okubo, et al., U.S. Publication No. 2003/0081518 for reasons stated on pages 10-13 of the Office Action. Since this rejection is predicated upon the correctness of the rejection of Applicants' claims 1-3, 8, 9, 11-14, 19, 32-34, 42, and 47-49, Applicants respectfully request the Examiner to reconsider and withdraw this rejection for the same reasons discussed.

Claims 10, 25, 27, 28, and 40-41 have been rejected under 35 U.S.C. §103 as being unpatentable over Okubo '518 in view of Shoji et al., U.S. Patent No. 6,157,609 for reasons stated on pages 13-14 of the Office Action. Again Applicants submit that this rejection is predicated upon the correctness of the rejection of Applicants' claims 1-3, 8, 9, 11-14, 19, 32-34, 42, and 47-49, and as a result, should be withdrawn for the same reasons discussed.

Claims 20-24 and 54 have been rejected under 35 U.S.C. §103 as being unpatentable

over Okubo in view of Osakabe, U.S. Patent No. 5,872,763 for reasons stated on pages 14-17 of the Office Action. Again, Applicants submit that this rejection is predicated upon the correctness of the rejection of Applicants' claims 1-3, 8, 9, 11-14, 19, 32-34, 42, and 47-49, and as a result, should be withdrawn for the same reasons discussed. More importantly, Applicants note that, as a secondary reference, Osakabe '763 does **not** disclose what the Examiner alleges. Osakabe '763 discloses a yet different optimal recording technique in which test recording signals are recorded on an optical disc by changing the intensity values of the erasing power, the bottom power and the writing power in order to determine a combination of optimum intensity values of the writing power and erasing power, of the writing power and bottom power, or of the writing power, erasing power and bottom power. However, much of varying of intensity values of these powers is **not** based on Applicants' previous "recording a test write pattern in a plurality of tracks of the optical recording medium" and "determining optimum powers, including optimum write, erase and bias powers, using a radio frequency signal reproduced from one of the plurality of tracks effected by writing in adjacent tracks", wherein "write pattern elements of the write pattern are optimized using at least one of a magnitude, an asymmetry value, and a jitter value of the radio frequency signal" as defined in Applicants' base claim 12. Therefore, in view of these reasons, Applicants respectfully request that the rejection be withdrawn.

Dependent claims 25-26 and 39 have been rejected under 35 U.S.C. §103 as being unpatentable over Okubo in view of Tsukamoto, U.S. Patent No. 7,012,870 for reasons stated on page 17 of the Office Action. Dependent claims 25, 29-31, and 42-44 have been rejected under 35 U.S.C. §103 as being unpatentable over Okubo in view of Furumiya et al., U.S. Patent No. 6,791,926 for reasons stated on pages 17-18 of the Office Action. Dependent claims 58 and 59 have been rejected under 35 U.S.C. §103 as being unpatentable over Okubo in view of Osakabe and further in view of Furumiya for reasons stated on page 19 of the Office Action. Claim 55 has been rejected under 35 U.S.C. §103 as being unpatentable over Okubo, in view of Shoji and further in view of Furumiya for reasons stated on page 19 of the Office Action. Claim 56 has been rejected under 35 U.S.C. §103 as being unpatentable over Okubo in view of Osakabe and further in view of Shoji for reasons stated on pages 20-21 of the Office Action. Since these rejections are predicated upon the correctness of the rejection of Applicants' claims 1-3, 8, 9, 11-14, 19, 32-34, 42, and 47-49, Applicants respectfully request the Examiner to reconsider and withdraw this rejection for the same reasons discussed.

Separately, Claims 45-46 have been rejected under 35 U.S.C. §103 as being

unpatentable over Okubo in view of Tsukamoto and further in view of Shoji et al., U.S. Patent No. 6,157,609, and further in view of Furumiya et al., U.S. Patent No. 6,791,926 for reasons stated on page 20 of the Office Action. However, Applicants respectfully traverse this rejection, noting that neither Okubo '518, Tsukamoto '870, Shoji '609 nor Furumiya '926, whether taken in combination or individually, discloses or suggests the specific step of Applicants' base claim 45 regarding a method of automatically optimizing writing on an optical disc to determine a write pattern, as shown in FIG. 10, including, for example, the use of different sets of optimum write pattern elements, such as T1, T2, dT1 and dT2. For example, base claim 45 defines a method of determining a write pattern by performing test recording on an optical recording medium, comprising:

- fixing a first write pattern element indicating a width of a first pulse and a second write pattern element indicating a width of multi-pulses, setting a third write pattern element indicating a shift amount of a starting edge of the first pulse, and setting a fourth write pattern element indicating a period of time for which a cooling pulse lasts to record a test write pattern;
- reproducing the test write pattern to output a radio frequency signal;
- detecting an asymmetry of the radio frequency signal;
- detecting an envelope of the radio frequency signal; and
- determining the third write pattern element using the asymmetry of the radio frequency signal and determining the fourth write pattern element using the envelope of the radio frequency signal.

Neither Okubo '518, Tsukamoto '870, Shoji '609 nor Furumiya '926, whether taken in combination or individually, discloses or suggests the specific step of Applicants' base claim 45. As a result, Applicants respectfully request that the rejection of claims 45-46 be withdrawn.

In view of the foregoing amendments, arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney at the Washington DC office at (202) 216-9505 ext. 232.

#### **INTERVIEW:**

In the interest of expediting prosecution of the present application, Applicants respectfully request that an Examiner interview be scheduled and conducted. In accordance with such interview request, Applicants respectfully request that the Examiner, after review of the present Amendment, contact the undersigned local Washington, D.C. attorney at the local Washington,

D.C. telephone number (202) 216-9505 ext. 232 for scheduling an Examiner interview, or alternatively, refrain from issuing a further action in the above-identified application as the undersigned attorneys will be telephoning the Examiner shortly after the filing date of this Amendment in order to schedule an Examiner interview. Applicants thank the Examiner in advance for such considerations. In the event that this Amendment, in and of itself, is sufficient to place the application in condition for allowance, no Examiner interview may be necessary.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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